

NOVEMBER/DECEMBER 2025

23UDA51 — MACHINE LEARNING

Time : Three hours

Maximum : 75 marks

SECTION A — (10 × 2 = 20 marks)

Answer ALL questions.

1. Define supervised learning.
2. Differentiate any two parametric and non-parametric models.
3. What is a multilayer perceptron?
4. Define genetic programming.
5. What is concept learning?
6. Define Maximum Likelihood principle.
7. What is KNN?
8. Define case-based reasoning.
9. What is a recommendation system?
10. Define FOCL.



SECTION B — (5 × 5 = 25 marks)

Answer ALL questions.

11. (a) Explain Support Vector Machines.
Or
(b) Discuss the applications of linear regression.
12. (a) Explain genetic algorithms with steps.
Or
(b) Write short notes on evaluation models in neural networks.
13. (a) Discuss Gibbs Algorithm.
Or
(b) Write short notes on Minimum Description Length principle.
14. (a) Explain Radial Basis Functions.
Or
(b) Discuss Locally Weighted Regression.
15. (a) Write short notes on sentiment analysis.
Or
(b) Discuss Sequential Covering Algorithm.

SECTION C — (3 × 10 = 30 marks)

Answer any THREE questions.

16. Explain supervised learning in detail with examples.
17. Describe the backpropagation algorithm with an example.
18. Explain the EM algorithm in detail with applications.
19. Discuss instance-based learning approaches in detail.
20. Explain reinforcement learning with real-world applications.